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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Gottfried Durr

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FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

LEO, LEONARD R

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,926	Applicant(s) DURR ET AL.	
	Examiner Leonard R. Leo	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/06, 3/09</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “the opening is of conical execution” in claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitations “the base” in line 4 and “the front side” in line 7. There is insufficient antecedent basis for these limitations in the claim.

Regarding claim 1, the phrase “in particular” in lines 1 and 4 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 3, the phrase “preferably” renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 7, the phrase “in particular” renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 13, the phrases “preferably” render the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 14, the phrase “preferably” renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

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Regarding claim 15, the phrase “preferably” renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-6, 9, 11-12 and 17 as best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Seewald. Figures 2-3 of Seewald discloses a heat exchanger comprising a tank 14 made of bent sheet metal 15 defining two semicircular chambers, a base 1, and flat cover 2 positioned inside the tank with a positive fit.

Regarding claims 5-6, Figure 2 of Seewald discloses opening 5, 6 with outward bent edge 12, 13.

Regarding claim 9, Figure 4 of Seewald discloses pipe 17 disposed inside the bent edge 13 of opening 6.

Regarding claim 12, Figures 1a-c of Seewald discloses slot 7 receiving separating walls to provide four fluid passes.

Regarding claim 17, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d

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1647 (1987). Employing the device of Seewald in a vehicle air conditioning system does not change the structure of the device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seewald in view of Cribari.

Seewald discloses all the claimed limitations except a number of stops on the tank.

Cribari discloses a heat exchanger comprising a tank 4 having a tunnel shaped part 18, a base 16, and a cover 6, wherein the tunnel shaped part 18 has a number of stops 24 for the purpose of positioning the cover.

Since Seewald and Cribari are both from the same field of endeavor and/or analogous art, the purpose disclosed by Cribari would have been recognized in the pertinent art of Seewald.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Seewald a number of stops on the tank for the purpose of positioning the cover as recognized by Cribari.

Regarding claim 3 Figures 8-9 of Cribari discloses bent brackets 42 on tunnel shaped part 18.

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Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seewald in view of Chiba et al.

The device of Seewald lacks the bent edge of opening being conical.

Chiba et al (Figure 4) discloses a heat exchanger comprising a tank 22 having an opening with a conical bent edge 25 and a pipe 24 fitted therein for the purpose of positioning the pipe during assembly.

Since Seewald and Chiba et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Chiba et al would have been recognized in the pertinent art of Seewald.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Seewald a conical bent edge for the purpose of positioning the pipe during assembly as recognized by Chiba et al. The specific angle of the conical bent edge is considered to be an obvious design expedient, producing no new and/or unexpected results and solving no stated problem. One of ordinary skill in the art would employ any conical angle to facilitate pipe assembly.

Regarding claim 8, Figures 5 and 6 of Chiba et al discloses a pipe fitted on the outside of the bent edge of the opening. As disclosed in Figure 3 of Chiba et al, pipe 4 is fitted inside the bent edge 8. Hence, Chiba et al discloses two alternate pipe joint connections, which are obvious variants of one another. Furthermore, it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

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Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seewald in view of Gowan.

The device of Seewald lacks the tank having a tapered edge.

Gowan (Figure 10) discloses a heat exchanger comprising a tank 12 having a cover 40 with a taper fitted therein for the purpose of facilitating insertion during assembly.

Since Seewald and Gowan are both from the same field of endeavor and/or analogous art, the purpose disclosed by Gowan would have been recognized in the pertinent art of Seewald.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Seewald a cover with a taper for the purpose of facilitating insertion during assembly as recognized by Gowan. As noted above, it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167. Therefore, to employ a taper on the tank edge instead of the cover as taught by Gowan would have been obvious to one of ordinary skill in the art.

Claims 13-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seewald in view of Yamamoto et al (5,311,935).

The device of Seewald lacks the specific dimensions of the fin.

Yamamoto et al ('935) discloses a heat exchanger comprising a plurality of flat tubes 23 and corrugated fins 24, wherein the fins have a rib height of 3.0 to 6.0 mm (Figure 10) and a rib pitch of 1.5 mm (Figure 11, i.e. about 67 ribs per 100 mm) for the purpose of achieving optimal heat transfer.

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Since Seewald and Yamamoto et al ('935) are both from the same field of endeavor and/or analogous art, the purpose disclosed by Yamamoto et al ('935) would have been recognized in the pertinent art of Seewald.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Seewald fins having a rib height of 3.0 to 6.0 mm and a rib pitch of 1.5 mm for the purpose of achieving optimal heat transfer as recognized by Yamamoto et al ('935).

Regarding claim 14, Yamamoto et al ('935) (Figure 11) discloses the rib pitch is 3.0 mm. As disclosed in Figure 1 of Yamamoto et al, the rib pitch, P_f and rib height, H_f define the base and height of a triangle, wherein opening angle equals the inverse tangent of half of P_f divided by H_f . As calculated, the opening angle, $\alpha = 26.6^\circ$, where $P_f = 3.0$ mm and $H_f = 3.0$ mm.

Regarding claim 16, Figure 14 of Yamamoto et al ('935) discloses the tube "width" ranges from about 1.2 to 2.0 mm.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seewald in view of Yamamoto et al (5,271,458).

The device of Seewald lacks the specific radius of curvature of the fin.

Yamamoto et al ('458) discloses a heat exchanger comprising a plurality of flat tubes 102 and corrugated fins 101 having a radius of curvature between 0.14 to .037 mm for the purpose of achieving optimal heat transfer (abstract).

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Since Seewald and Yamamoto et al ('458) are both from the same field of endeavor and/or analogous art, the purpose disclosed by Yamamoto et al ('458) would have been recognized in the pertinent art of Seewald.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Seewald a fin having a radius of curvature between 0.14 to .037 mm for the purpose of achieving optimal heat transfer as recognized by Yamamoto et al ('458).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents to da Silva cited on the IDS filed on March 20, 2009 are not pertinent to the art of heat exchangers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ Leonard R. Leo /
PRIMARY EXAMINER
ART UNIT 3744

September 28, 2009